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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,348	10/09/2003	Yong Chae Jung	8733.923.00-US	8316
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MCKENNA LONG & ALDRIDGE LLP			EXAMINER	
1900 K STREET, NW			MA, CALVIN	
WASHINGTON, DC 20006				
			ART UNIT	PAPER NUMBER
			2629	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/681,348	<b>Applicant(s)</b> JUNG ET AL.	
	<b>Examiner</b> CALVIN C. MA	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 28-31, 34-36, 38, 40-43, 46-48, 50-52, 54 and 56-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28-31, 34-36, 38, 40-43, 46-48, 50-52, 54 and 56-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 28-30, 34-36, 40-42, 46-48, 50-51, 54, and 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowie USP 5847690 in view of Perski et al. USP 6762752 and further in view of Komatsu et al. USP 5657011.

Regarding claim 28, Boie et al. teach an LCD device including a touch panel (A unitary display and sensing device integrates liquid crystal display module elements of a liquid crystal display module for detecting input on a flat panel display screen with the capability for digitizing the detected inputs (abstract)) comprising:

an LCD panel (liquid crystal module) having first (color filter plate Fig.2 (10)) and second substrates (active matrix plate Fig.2 (25)) facing each other, and a liquid crystal layer (liquid crystal Fig.2 (16)) between the first and second substrates;

a thin film transistor array on the first substrate (liquid crystal material and an active matrix plate upon which an array of thin film transistors and picture elements

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(pixels) have been formed and which functions to cause the liquid crystal material to display shapes of variable opacity in response to an electric field created between two transparent conductors (Col. 1, Lines 56-61));

a plurality of pixel electrodes electrically connected to respective thin film transistors of the thin film transistor array (liquid crystal display module 1, is a patterned material which is employed to prevent light from impinging on the thin film transistors used to switch the pixels on the active matrix plate 25. In addition, black matrix material 11 is also used to cover the edges of the pixel electrodes where distortions in the electric field applied across a liquid crystal display (Col. 1, lines 30-36));

an input sensor (capacitive touch sensor Fig.3B (30)) having first and second coil arrays formed of a transparent electrode (The current attributable to area K 310 on sensing electrode L 311 will flow to node O 312 and the current attributable to area M 313 on sensing electrode N 314 will flow to node P 315. Area K 310 is much larger than area M 313, so the current flowing to node O 312 will be larger than the current flowing to node P 315, which is determinative of the location of the object relative to the center of the array of sensing electrodes (Col. 5, line 63 to Col. 6, line 3) where K and M represent the first and second coil arrays, the sensor (capacitive touch sensor Fig.3B (30)) integrated with any one of the first and second substrates in the LCD panel (LCD module Fig.2);

a light-shielding layer (i.e. the black matrix area is a layer of material that coexist on the same plane as the sensor) and a color filter layer on the EM sensor corresponding to the pixel electrodes (color filter array Fig.2 (102));

an overcoat layer on the color filter layer and the light light-shielding layer (modified liquid crystal display module elements may include but are not limited to the light shielding layer for the color filters, the common voltage element and the color filter plate (Col. 2, lines 38-41));

a common electrode on the overcoat layer (modified liquid crystal display module elements may include but are not limited to the light shielding layer for the color filters, the common voltage element and the color filter plate (Col. 2, lines 38-41));

a liquid crystal layer between the first and second substrates (generating a displacement current in response to an object touching a portion of a display screen of the liquid crystal display wherein the black matrix layer and a transparent conductive of the liquid crystal display sense the location of the object touching the display screen based upon the relative size of the displacement current generated at the point of contact between the object and the display screen) (Col. 10, Lines 40-47); and

a backlight (backlight, Fig. 1A) unit below the LCD panel (LCD module, Fig. 1A). accordingly, the prior art teaches all the claimed limitations with the exception of providing an EM sensor (i.e. even though the layer of black matrix is coplanar with the coil it is still shown to be a separate entity in Fig. 2 and therefore are on the sensor area) (see Fig. 2).

However, Bowie does not explicitly teach an EM sensor including first and second coil arrays including a plurality of coils and each of the plurality of coils has first and second open ends and wherein the first coil array is perpendicular to the second coil array.

Perski teaches an EM sensor including first and second foil layer (42, 46 In Figure 3) including a plurality of lines (40, 42, 44, 46) and each of the plurality of line has first and second open ends (i.e. the lines are in straight grid form having two open end for each line) and wherein the first line is perpendicular to the second line array (i.e. the two lays are said to be orthogonal which is perpendicular) (see Fig. 3, Col. 9, Lines 35-62).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the dual mode EM and touch sensor control of Perski in the overall display control system of Bowie in order to allow the user multi-touch capability with both touch and stylus control (see Perski Col. 2, Lines 43-65).

Bowie and Perski do not teach coils in the EM sensor, Komatsu teaches coils in the EM sensor (see Fig. 7, Col. 7, Lines 50-65).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the coils array design of Komatsu in both of the perpendicular foil layer of Perski in order to prevent interference from noise in the periphery of a sensor surface (see Komatsu, Col. 4, Lines 43-49)

Claims 40 and 50 are analyzed to be broader in scope as claim 28, and is covered on the same grounds.

As to claim 29, Boie teach a controller below the backlight unit for controlling the sensor (Liquid crystal display panels are used in many electronic data handling devices,

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including lap-top computers, personal digital assistants, personal organizers, and point-of-sale terminals (Col. 1, lines 11-14), where the lap-top computers are including controller which can be above or below the backlight (see Fig. 2 and 6).

As to claim 30, Boie, Perski and Komatsu teach the EM sensor includes a first transparent insulating layer over the first coil array (60) including the second substrate, wherein the first coil is formed on the second substrate (i.e. the first coil array would be foil layer 60 that would be formed on a layer that is transparent so that the display can be viewed by the viewer which forms a substrate); and

a second transparent insulating layer over the first transparent insulating layer, including the second coil array (62), wherein the second coil array is formed on the first transparent insulating layer (i.e. the foil 62 which would be the second transparent layer which is also insulated to allow the sensor the properly function) (see Perski Fig. 5, Col. 10, Lines 9-45).

As to claim 41, see discussion of claim 29 above, claim 41 is analyzed to have the same scope as claim 29 and is rejected on the same ground.

As to claims 42 and 54, Boie, Perski and Komatsu teach the EM sensor includes:  
a first transparent insulating layer over the color filter layer including the first coil array, wherein the first coil array is formed on the color filter (i.e. the sensor is formed on

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the color filter plate 10 which is in front of the display where the actual coil layer of Komatsu and Perski would be constituted) (see Boie, Fig. 3A, Col. 4, Lines 10-48)

a second transparent insulating layer over the first transparent insulating layer including the second coil array, wherein the second coil array is formed on the first transparent insulating layer (i.e. the foil 62 which would be the second transparent layer which is also insulated to allow the sensor the properly function is formed on the transparent layer 60) (see Perski Fig. 5, Col. 10, Lines 9-45).

As to claim 51, Bowie teaches a common electrode on any one of the first and second substrates and a controller for controlling the sensor below the backlight unit (modified liquid crystal display module elements may include but are not limited to the light shielding layer for the color filters, the common voltage element and the color filter plate (Col. 2, lines 38-41)) and a controller below the backlight unit for controlling the sensor (Liquid crystal display panels are used in many electronic data handling devices, including lap-top computers, personal digital assistants, personal organizers, and point-of-sale terminals (Col. 1, lines 11-14), where the lap-top computers are including controller which can be above or below the backlight.

As to claims 34-36, 46-48, and 56-58, Komatsu teaches a electro-magnetic screen (100) in combination with a sensor PCB (110) wherein first coil opening is electrically controlled to the ground voltage (COM) and second coil opening is

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electrically controlled to a MUX (110) where the MUX control the coil to be switched and therefore the voltage is applied (see Fig. 8, Col. 8, Lines 48-64).

3. Claims 31, 38, 43 and 52 are rejected under 35 USC 103 (a) as being unpatentable over Bowie USP 5847690 in view of Perski et al. USP 6762752 and further in view of Komatsu et al. USP 5657011, as applied in claim 28 and further in view of Kiguchi USP 6630274.

Regarding claim 38, the combination of Boie et al. Perski and Komatsu does not explicitly teach the overcoat layer is formed of an organic layer.

Kiguchi teach the composition of the protective layer the same as the composition of the organic thin film, thus making it possible to prevent crawling or unevenness in the protective film formed on the banks, whereupon color filters for liquid crystal display elements can be provided which exhibit outstanding contrast (Col 4, Lines 19-24).

Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have utilize the protective layer as taught by Kiguchi et al. in the combination' system disclosed by Boie, Perski and Komatsu because this would provide color filters and liquid crystal elements comprising banks that are ideal for methods of manufacturing color filters by filling banks with ink by the ink jet method (Col. 2, lines 29-32).

As to claims 31, 43, 52, the combination of Boie, Perski, Komatsu and Kiguchi teaches the insulating layer is formed of an organic layer (see Kiguchi Col. 4, Lines 19-24).

### ***Response to Arguments***

4. Applicant's arguments filed 12/03/2008 have been fully considered but they are not persuasive.

On page 7 and 8 of reply the applicant argue regarding claim 28 that the black matrix material is formed on the same layer with the sensor and therefore the prior art Boie is unable to teach "a light-shielding layer and a color filter layer on the EM sensor corresponding to the pixel electrodes." The examiner disagree since the claim language does not specifically limit that the light shielding layer are not coplanar with the sensor, and in figure 2 of Boie it is clearly seen that the black matrix is a separate entity that is coplanar with the sensor but are **placed onto the sensor unit in the manufacturing of the device**. In this way the scope of the claimed limitation still read on Boie.

On page 8 of the reply the applicant argues that Komatsu explicitly shows that the EM sensor is formed below the LCD device and it can not be combined with Boie, the examiner disagree with this point because Komatsu is relied to teach a specific sensor design that one of ordinary skill in the art at the time the invention was made would be able to appreciate that such a sensor layout when used in combination with

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the display application to create integrated touch input can be utilized in combination with Boie to create an alternate LCD structure as taught in Boie.

As to the argument regarding to claims 40 and 50, please see answer with respect to claim 28 above.

### ***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CALVIN C. MA whose telephone number is (571)270-1713. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on 571-272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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March 10, 2009

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